

- (i) Tick the correct box to show whether each of the following statements about the distribution of volcanoes and supervolcanoes is **True** or **False**.

	<b>True</b>	<b>False</b>
Volcanoes are only found on constructive plate boundaries.	<input type="checkbox"/>	<input type="checkbox"/>
There is a line of volcanoes on the west coast of North and South America.	<input type="checkbox"/>	<input type="checkbox"/>
The majority of super volcanoes are to be found near destructive plate boundaries.	<input type="checkbox"/>	<input type="checkbox"/>
Both volcanoes and super volcanoes are sometimes found away from plate boundaries.	<input type="checkbox"/>	<input type="checkbox"/>

(4)

- (ii) Complete the paragraph below to explain why volcanoes occur at constructive plate boundaries. Choose the correct words from the following list.

**gentle**                      **magma**                      **apart**  
**together**                      **steep**                      **lava**

At constructive plate boundaries, the plates are moving .....  
Hot, molten rock called ..... moves up from the mantle. This  
builds up and a volcano with ..... sides is formed.

(3)

- (iii) Give **one** difference between a volcano and a supervolcano for each of the following.

Shape

.....  
.....  
.....  
.....  
.....  
.....

Scale of eruption

.....

.....

.....

.....

.....

(4)  
(Total 11 marks)

Study the table below which shows information about the six earthquakes that have caused most deaths in the last 100 years.

Year	Location	Level on Richter Scale	Number of deaths
1976	Tangshan, China	7.5	255 000
2004	Sumatra	9.1	227 900
1920	Haiyuan, China	7.8	200 000
1923	Kanto, Japan	7.9	142 000
1948	Ashgabat, USSR	7.3	110 000
2005	Pakistan	7.6	86 000

United States Geological Survey, Earthquake Hazards Program.

- (i) Give evidence that is either for or against the statement that ‘the higher the magnitude of the earthquake, the greater the number of deaths’.  
Circle either **For** or **Against**.

**For / Against**

.....

.....

.....

.....

.....

(2)

- (ii) Suggest possible reasons why most deaths occurred in Tangshan, China, even though this earthquake measured 7.5 on the Richter scale.

.....  
.....

.....  
.....

.....  
.....

.....  
.....

(2)  
(Total 4 marks)

Describe a method, other than the Richter Scale, of measuring earthquakes.

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

(Total 4 marks)

Describe the immediate and long-term responses to an earthquake that you have studied in a poor part of the world.

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

**(Total 6 marks)**

- (i) How is the distribution of supervolcanoes different from that of volcanoes?

.....  
.....

.....  
.....

.....  
.....

.....  
.....

**(2)**

- (ii) Explain why volcanoes are found at destructive plate boundaries.

.....

.....

.....

.....

.....

.....

.....

(3)

(iii) Describe the ways in which a supervolcano is different from a volcano.

.....

.....

.....

.....

.....

.....

.....

.....

.....

(4)

(Total 9 marks)

Study the table below which shows information about frequency and magnitude of earthquakes between 2000 and 2007.

Magnitude (Richter scale)	Frequency
8.0 – 8.9	12
7.0 – 7.9	103
6.0 – 6.9	1033
5.0 – 5.9	11694
4.0 – 4.9	82762
3.0 – 3.9	62013
2.0 – 2.9	40491
1.0 – 1.9	7039
0.0 – 0.9	32082

United States Geological Survey, Earthquake Hazards Program.

- (i) Describe the relationship between the magnitude of earthquakes and their frequency.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(4)

- (ii) Describe a method, other than the Richter Scale, of measuring earthquakes.

.....

.....

**(4)**  
**(Total 8 marks)**

[illegible]

.....

.....

.....

.....

.....

.....

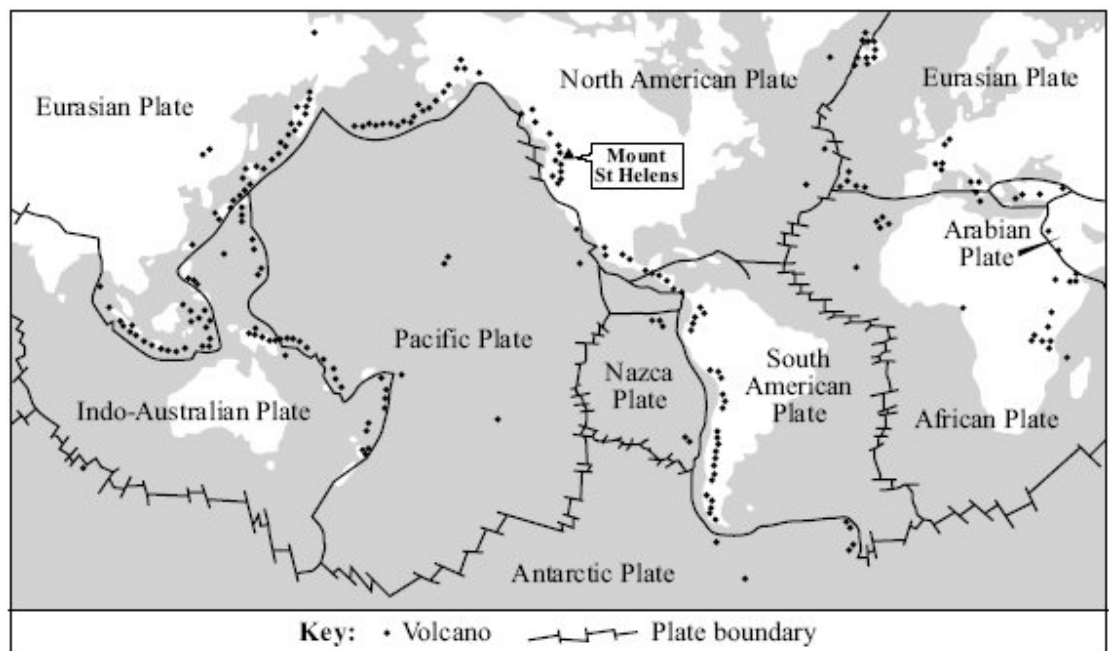
.....

.....

(Total 8 marks)

Study **Figure 1** which shows the distribution of volcanoes.

**Figure 1**



- (i) Tick the correct box to show whether each of the following statements about the distribution of volcanoes is **true** or **false**.

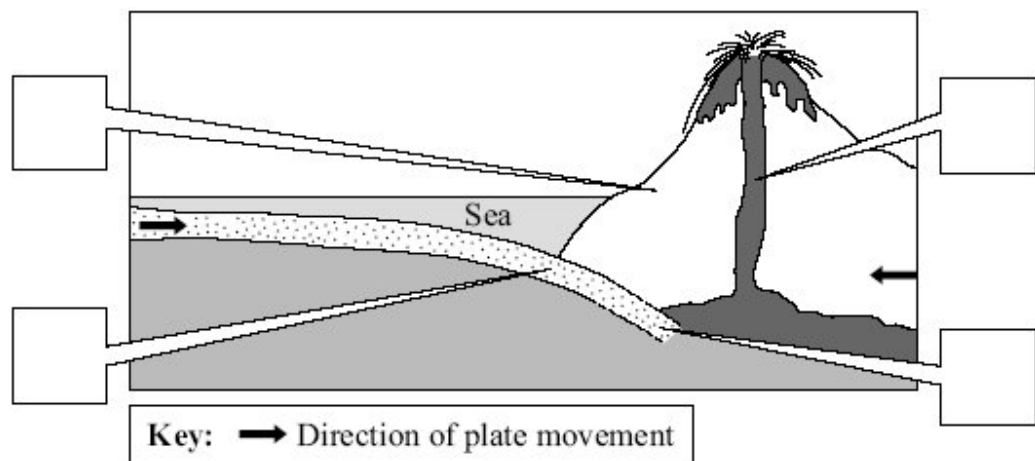
	True	False
Volcanoes often occur in lines.	<input type="checkbox"/>	<input type="checkbox"/>
Many volcanoes are found around the edge of the Pacific Ocean.	<input type="checkbox"/>	<input type="checkbox"/>
There are no volcanoes in Europe.	<input type="checkbox"/>	<input type="checkbox"/>

(3)

- (ii) The location of Mount St Helens, in the USA, is shown on **Figure 1**. This volcano occurs at a compressional (destructive) plate boundary.

**Figure 2** is a cross-section of a compressional (destructive) plate boundary.

**Figure 2**



Label **Figure 2** to explain why volcanoes such as Mount St Helens occur at compressional plate boundaries.

Choose **four** correct labels from the list below.

Write the letter in the correct box.

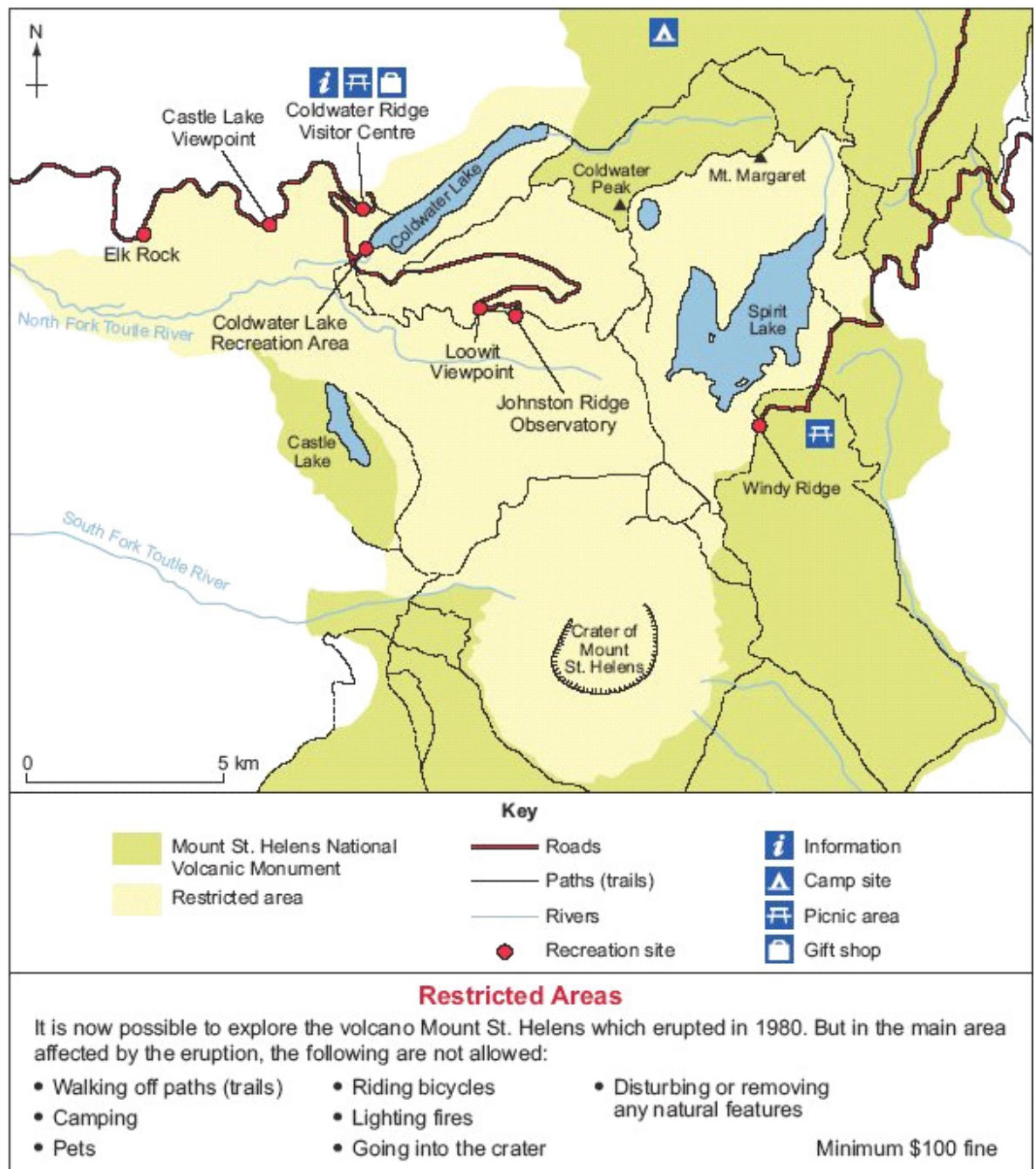
- A** Magma moves towards the surface through a vent.
- B** Oceanic crust sinks below continental crust.
- C** Continental crust is less dense than oceanic crust.
- D** Plates are moving apart.

E Friction and heat melt rock.

(4)

(Total 7 marks)

Study the figure below, which shows information about the area north of the crater of Mount St Helens, an active volcano.



Used with permission from Northwest Interpretive Association

- (i) Give **one** physical and **one** human attraction shown on the figure above.

Physical attraction

.....

Human attraction

.....

(2)

- (ii) The figure above lists the activities which are not allowed in the Restricted Area of Mount St Helens. For **one** of these activities, suggest why it is not allowed.

.....

.....

.....

.....

.....

.....

.....

.....

(2)

(Total 4 marks)

Earthquakes are another example of tectonic activity.  
Describe the primary and secondary effects of an earthquake.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

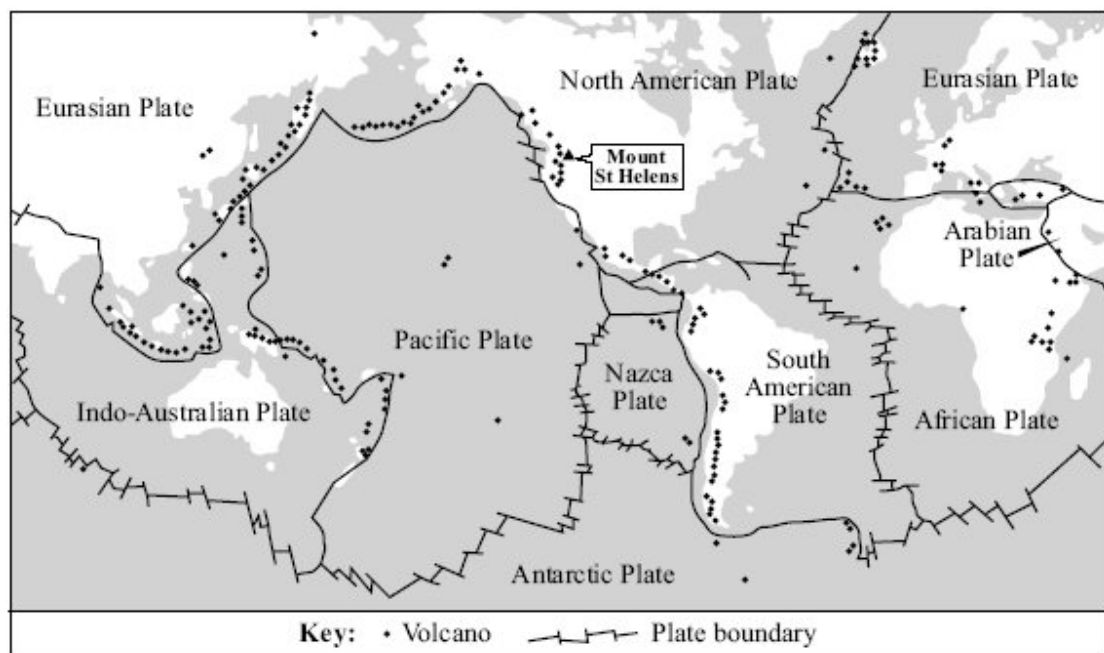
.....

.....

.....  
 .....  
 .....

(Total 4 marks)

Study the figure below which shows the distribution of volcanoes.



[vulcan.wr.usgs.gov/cascades/volcano/observatory](http://vulcan.wr.usgs.gov/cascades/volcano/observatory)

(i) Give **two** facts about the distribution of volcanoes.

Fact 1

.....  
 .....  
 .....

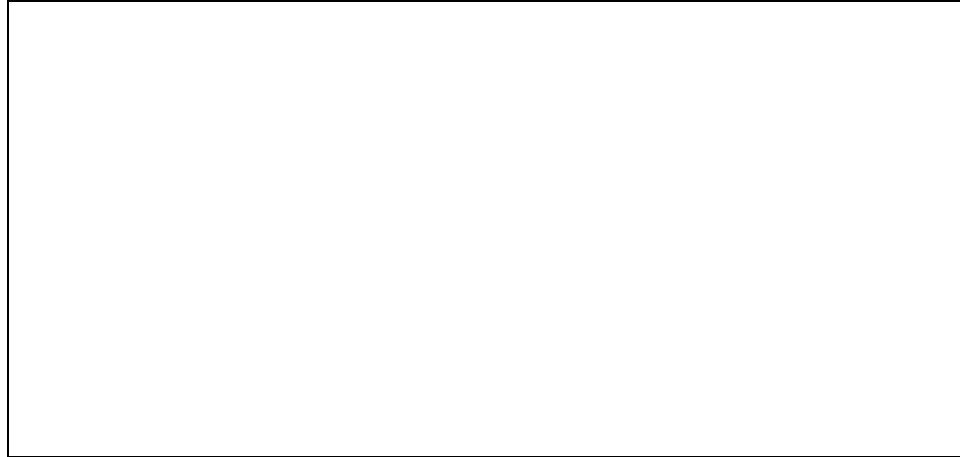
Fact 2

.....  
 .....  
 .....

(2)

- (ii) The location of Mount St Helens, an active volcano in the USA, is shown on the figure above. This volcano occurs at a compressional (destructive) plate boundary.

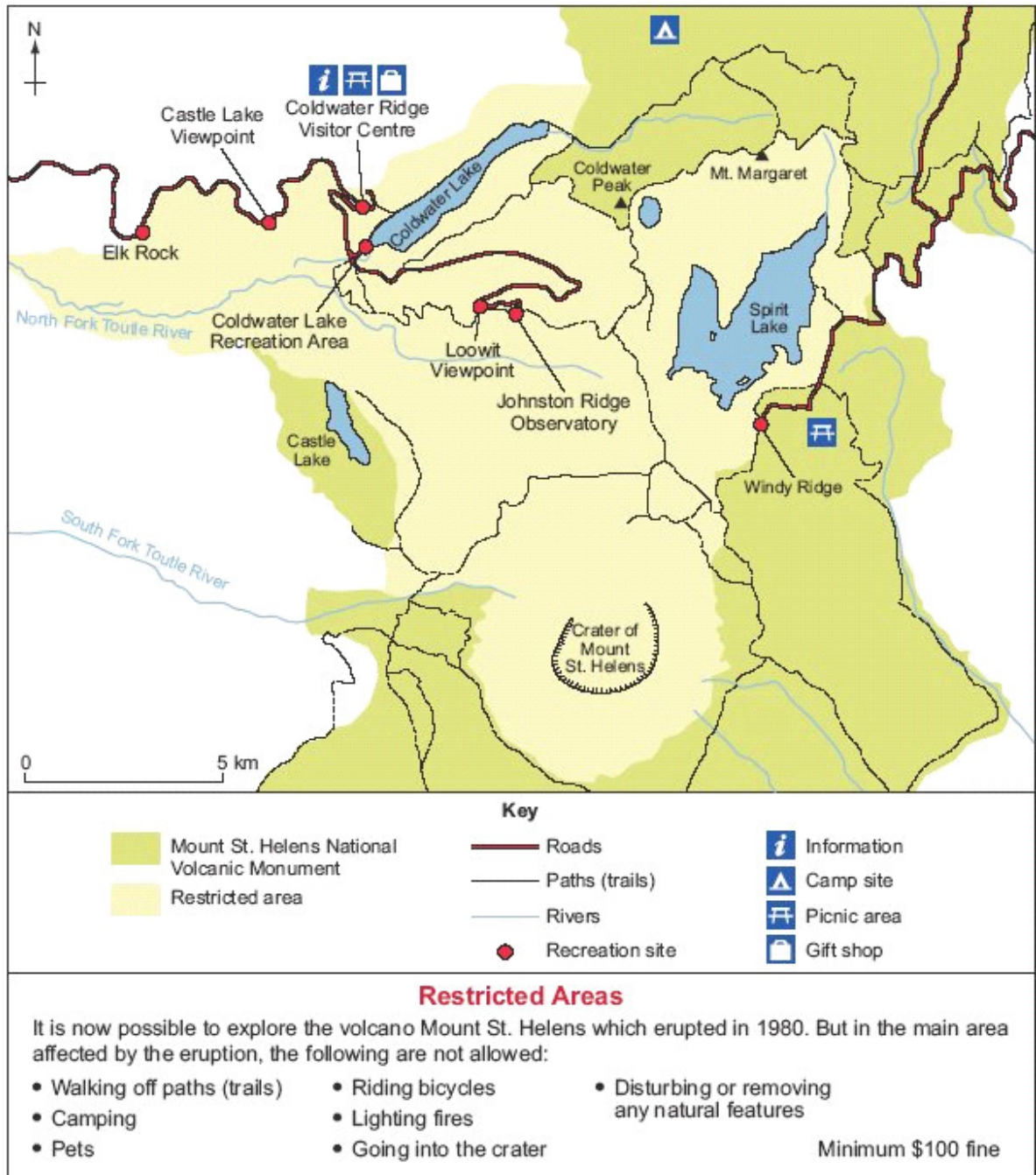
Draw a labelled diagram to explain why volcanoes occur at compressional plate boundaries.



(4)

(Total 6 marks)

Study the figure below, which shows information about the area north of the crater of Mount St Helens.



Used with permission from Northwest Interpretive Association

Describe the varied opportunities for tourism.

.....

.....

.....

.....

**(Total 3 marks)**

This image shows a full page of primary-ruled paper. It features ten sets of horizontal lines. Each set consists of a solid top line, a dashed middle line, and a solid bottom line, providing a guide for letter height and placement. The lines are evenly spaced across the entire page.

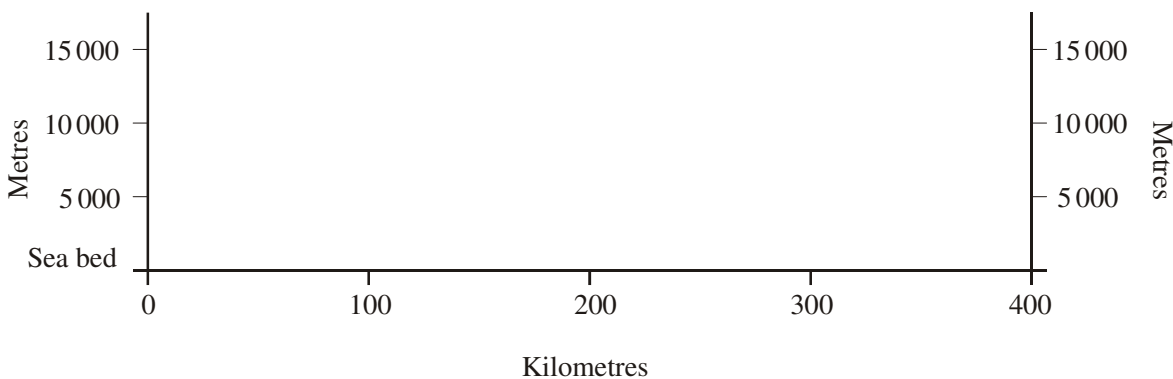
.....

(Total 6 marks)

- (i) On the outline below, draw a cross-section through Mauna Loa, a volcano in Hawaii.

Use the following information:

- it is 400 kilometres wide at its base;
- it rises 10 000 metres above the sea bed;
- it has a central crater.



(3)

- (ii) Tick the correct box to show whether each of the following statements about Mauna Loa is **true** or **false**.

	True	False
Mauna Loa has a wide base and gentle sides.	<input type="checkbox"/>	<input type="checkbox"/>
Mauna Loa is a shield volcano.	<input type="checkbox"/>	<input type="checkbox"/>
Mauna Loa is composed of acid lava that cools quickly.	<input type="checkbox"/>	<input type="checkbox"/>

(3)

(Total 6 marks)

Describe the immediate effects of a volcanic eruption or earthquake that you have studied.

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

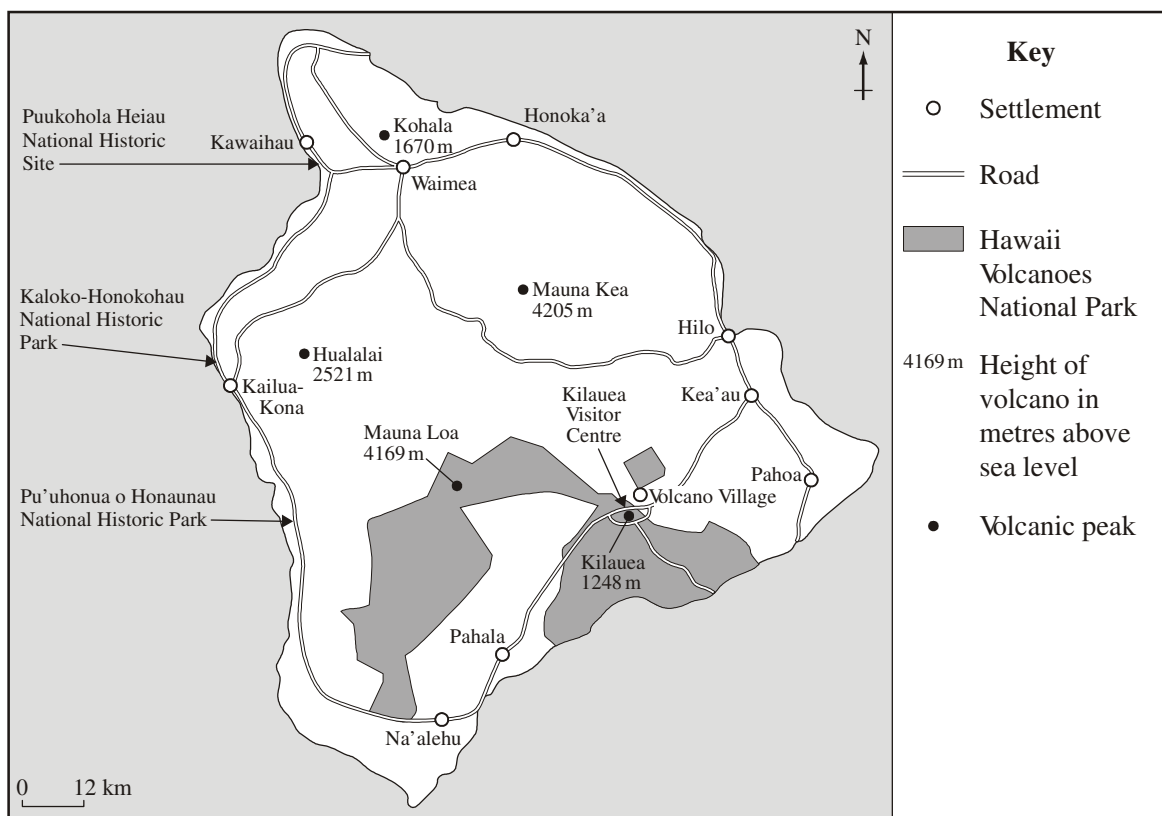
.....  
.....

.....  
.....

.....  
.....

**(Total 4 marks)**

Study the figure below which shows the island of Hawaii.



www.nps.gov

(i) Name the highest volcano on the island of Hawaii.

.....  
.....

(1)

(ii) Give **one** tourist attraction that could be visited on the island.

.....  
.....

(1)

(iii) Apart from tourism, describe some other advantages of living near volcanoes.

.....  
.....  
.....  
.....  
.....

.....

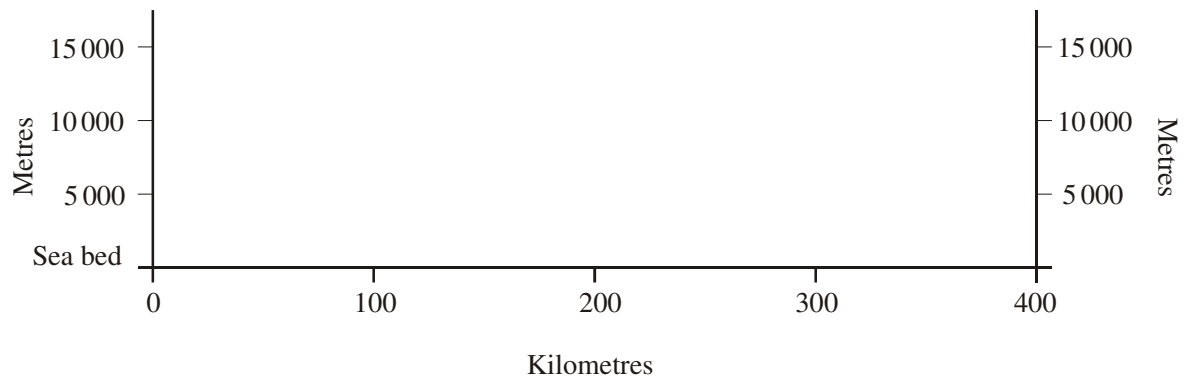
.....

.....

.....

(3)  
(Total 5 marks)

- (i) On the outline below, draw a cross-section through Mauna Loa, a volcano in Hawaii. The volcano is 10 000 metres high and has a diameter of 400 kilometres.



(3)

- (ii) Mauna Loa is a shield volcano. Explain the characteristics of shield volcanoes and how they are formed.

.....

.....

.....

.....

.....

.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

.....  
.....

(6)  
(Total 9 marks)

Describe **one** advantage of living near a volcano.

.....  
.....

.....  
.....

.....  
.....

.....  
.....

(Total 2 marks)

Using a volcanic eruption or an earthquake you have studied, describe the short-term responses to the disaster.

.....  
.....

.....  
.....

.....

.....

.....

.....

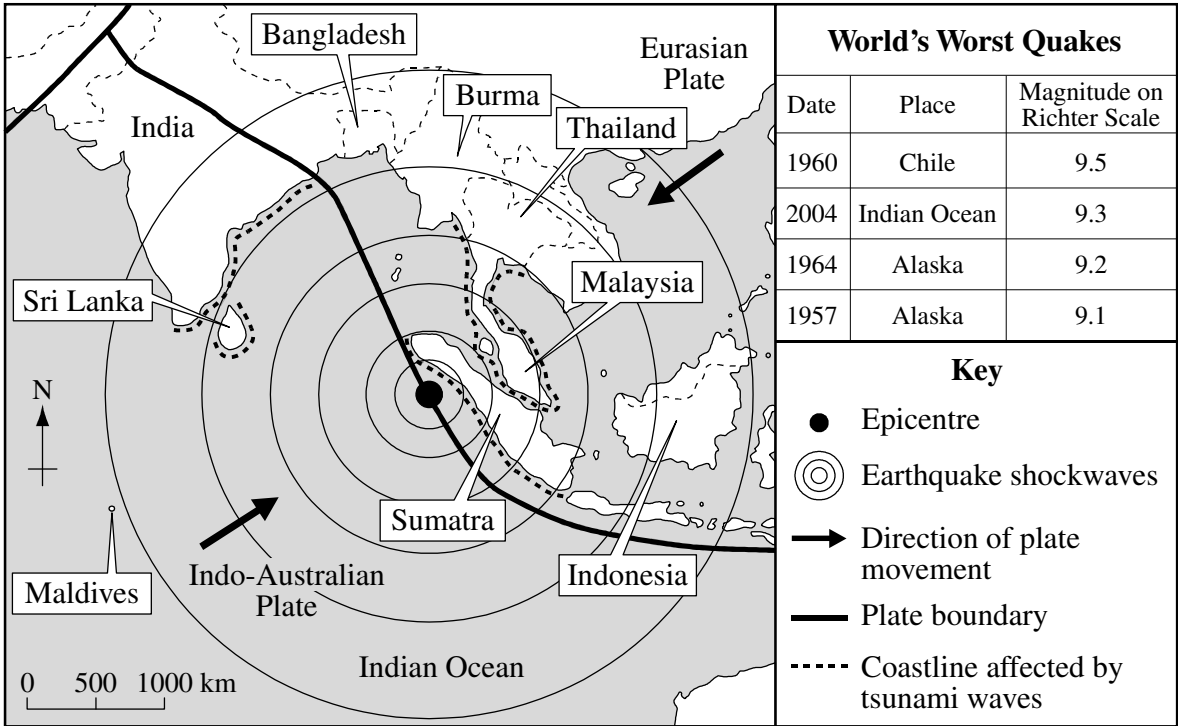
.....

.....

.....

(Total 4 marks)

Study the figure below, which shows information about the earthquake in the Indian Ocean on 26 December 2004.



Adapted from “Where the Disaster struck”, *Northern Echo*, 27 December 2004, Newsquest (North East) Ltd

(i) What did the earthquake measure on the Richter Scale?

.....  
..... (1)

- (ii) Off the coast of which island was the epicentre of the earthquake?

.....  
..... (1)

- (iii) What caused the loss of life in the affected countries?

.....  
..... (1)

- (iv) Using the figure above, complete the sentences below to explain why there was an earthquake.

There is a plate boundary in the ..... Ocean. Here the

plates are moving ..... . The plates are called the Indo-Australian plate and the ..... plate. The plates suddenly moved, causing the earthquake.

(3)

- (v) Suggest why the loss of life was so great in Sumatra, part of an LEDC.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

**(4)**  
**(Total 10 marks)**

**(Total 6 marks)**